

Remarks

I. Status of the claims

Upon entry of the foregoing amendment, claims 176-177, 180, 183-189, 192, 195-201, 204-211, 214, 217-223, 226-240, 243-249, 251-253, 255-265, 268-274, 276, 278, and 280-282 are pending in the application, with claims 176, 210, 232, 249, 251, 253, 255, 263, 274, 276, 278, and 280 being the independent claims. Claims 178-179, 181-182, 190-191, 193-194, 212-213, 215-216, 241, 250, 254, 275, 277, and 279 are sought to be canceled. Claims 176, 184-187, 196-199, 210, 218-221, 232, 249, 251, 253, 255, 259-263, 274, 276, 278, and 280 are sought to be amended. No new matter is added by way of these amendments. It is respectfully requested that the amendments be entered and considered.

Support for the amendment of claims 176, 184-187, 196-199, 210, 218-221, 232, 249, 251, 253, 255, 259-263, 274, 276, 278, and 280 can be found, *inter alia*, throughout the specification, for example, at page 2, lines 5-14; page 18, lines 29-30; page 20, lines 7-11; page 25, lines 3-6; page 30, lines 21-27; the Examples; and original claims 46-48 and 71-75.

II. Discussions with Examiners

A. Discussion with Examiner Peter Paras

Examiner Peter Paras' courtesy extended Applicants' representative, Doug Golightly, in a telephone conversation on February 23, 2007 is acknowledged and gratefully appreciated. Examiner Paras explained that Examiner Joseph Woitach prepared the current Office Action, however Examiner Woitach has moved to another art unit and the present application is in the process of being assigned to another Examiner. Also discussed were options for continuing prosecution. No agreements were reached.

B. Discussion with Examiner Joseph Woitach

Examiner Joseph Woitach's courtesy extended Applicants' representative, Doug Golightly, in a telephone conversation on February 26, 2007 is acknowledged and gratefully appreciated. Examiner Woitach indicated that the present application is in the process of being

assigned to another Examiner. Also discussed were the rejections under 35 U.S.C. § 112, first paragraph, and 35 U.S.C. § 103(a).

With regards to the enablement rejection, Applicants' representative indicated that he believed the Examiner's position to be that the claims are enabled for mouse embryonic stem cells. It is Applicants' understanding that the Examiner agreed.

With regards to the obvious rejection, two issues were discussed. 1) One issue discussed was whether the cited references disclose serum free cell culture medium capable of preventing differentiation of the embryonic stem cells during expansion. Applicants' representative pointed out that Ponting (U.S. Patent No. 5,405,772) discusses the hematopoiesis that occurs when hematopoietic cells are grown in Ponting's disclosed serum free cell culture medium. No agreement was reached with regards to this issue. 2) A second issue discussed was whether there was, at the time of filing, a lack of motivation and/or suggestion for utilizing a lipid-rich serum albumin with a serum free cell culture medium, to produce a serum free cell culture medium capable of preventing differentiation of the embryonic stem cells during expansion. Applicants' representative noted that, although the utilization of a lipid-rich serum albumin in certain cell culture medium may have been known in the art, Applicants are of the position that there was no motivation or suggestion to arrive at the claimed invention. Applicants understood the Examiner to indicate that this legal argument may be relevant to the outstanding obvious rejection and would be considered accordingly. However, no agreement was reached with regards to this issue.

III. Claim Rejections Under 35 U.S.C. § 112, First Paragraph

Claims 176-201, 204-223, 226-241, 243-265, and 268-282 were rejected under 35 U.S.C. § 112, first paragraph,

because the specification, while being enabling for a composition of mouse embryonic stem cells and serum-free media capable of preventing differentiations of mouse embryonic stem cells, and the methods of use of said composition, does not reasonably provide enablement for other combinations of media and embryonic stem cells from any other animal.

(Office Action, pages 2-3.)

Solely to advance prosecution, and not in acquiescence to the Examiner's rejection, Applicants have amended the present claims to refer to mouse embryonic stem cells. The present

claims do not refer to embryonic stem cells of other species. Since the “Examiner acknowledges that the compositions and methods encompassing mouse embryonic stem cells are enabled” (Office Action, page 3), Applicants believe that the amendments of the claims render the rejection under 35 U.S.C. § 112, first paragraph, moot.

IV. Claim Rejections Under 35 U.S.C. § 103

Claims 176-201, 204-223, 226-241, 243-265, and 268-282 were rejected under 35 U.S.C. § 103(a) as being obvious over Ponting (U.S. Patent No. 5,405,772), GIBCO BRL Products and Reference Guide (1997) Chapters 5 and 8 (referred to hereafter as “the GIBCO reference”) and Atsumi *et al.* (*Develop. Growth & Differ.* 35(1):81-87 (1993)). (Office Action, page 6.) Applicants respectfully disagree.

Applicants believe this rejection under 35 U.S.C. § 103(a), as applied to the claims presented herein, is improper because: 1) not all elements of the claims are taught by the cited references; 2) at the time of filing, there was no motivation or suggestion to combine the elements of the present claims in the manner claimed; and 3) the cited references do not provide a reasonable expectation of success for combining the claimed elements to arrive at the claimed invention.

With regards to above, the claims as presented herein refer to, *inter alia*, a serum-free cell culture medium capable of preventing differentiation of mouse embryonic stem cells during expansion and none of the cited references disclose these elements. For example, Ponting focuses on methods and compositions for the culture of hematopoietic cells, not embryonic stem cells. In fact, Applicants have found only one sentence in Ponting which refers to embryonic stem cell lines. (Ponting, column 9, lines 9-14.) This sentence states that “[t]he culture media also supports a wide range of cell lines including immortalized versions of those already listed; examples of others include . . . embryonic stem cell lines”. (Ponting, column 9, lines 9-14; underlining added.) Applicants have found no disclosure in Ponting teaching that the cell culture medium discussed in Ponting is capable of preventing differentiation of mouse embryonic stem cells during expansion. Actually, Ponting notes that hematopoietic stem cells undergo hematopoiesis when cultured in the serum free medium discussed therein. For example, Ponting states “[i]t was determined that only the medium of the current invention showed any signs of

hematopoiesis taking place”. (Ponting, column 17, lines 63-65.) Therefore, Ponting neither teaches nor suggests cell culture media which prevents differentiation of hematopoietic cells or mouse embryonic stem cells. Further, Atsumi *et al.* and the GIBCO reference do not cure the deficiencies of Ponting. Since all elements of the present claims are neither taught nor suggested by the cited references, a *prima facie* case of obviousness has not been established.

Applicants presume that the Examiner has cited the GIBCO reference because it shows the existence of various cell culture reagents. Even if the GIBCO reference refers to components of the claimed invention, the GIBCO reference does not lead one skilled in the art to the claimed invention, even when combined with Ponting and Atsumi *et al.* In particular, there is no suggestion or motivation to combine elements to arrive at, *inter alia*, a serum-free cell culture medium capable of preventing differentiation of mouse embryonic stem cells during expansion, wherein the serum-free cell culture medium comprises a lipid-rich serum albumin and comprises at least one factor selected from the group consisting of a leukemia inhibiting factor, a steel factor, a ciliary neurotrophic factor and an oncostatin M.

Additionally, in order to maintain a rejection under 35 U.S.C. § 103(a) for the claims presented herein, the Examiner must show, *inter alia*, that at the time of filing there was a reasonable expectation of success in arriving at the claimed invention. As discussed above, none of the references teach or suggest a serum-free cell culture medium capable of preventing differentiation of mouse embryonic stem cells during expansion. In fact, Ponting shows that hematopoietic cells exhibit hematopoiesis when cultured in the cell culture medium discussed in Ponting. (Ponting, column 17, lines 63-65.) Consequently, based on the cited references, one skilled in the art at the time of filing would have expected the present combination of claim elements to result in a culture medium that is not capable of preventing differentiation of mouse embryonic stem cells during expansion. Therefore, Applicants believe that a *prima facie* case of obviousness can not be maintained based on the cited references.

In view of the above, Applicants respectfully request that the Examiner reconsider and withdraw the rejection under 35 U.S.C. § 103(a).

Conclusion

It is not believed that extensions of time are required beyond those that may otherwise be provided for in accompanying documents. However, if additional extensions of time are necessary to prevent abandonment of this application, The United States Patent and Trademark Office is hereby authorized to charge any fee deficiency required to prevent abandonment of the current application or credit any overpayment to Deposit Account 50-3994.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete Reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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